METHAMPHETAMINE ("METH") USE; CLANDESTINE METHAMPHETAMINE LABORATORIES; AND GUIDELINES

The purpose of this chapter is to make information available to staff, regarding the dangers of methamphetamine use and production, as well as to provide guidelines for Children's Division staff that come into contact with or receive information regarding this subject. The following information was gathered from the Missouri State Highway Patrol, the Missouri Department of Public Safety, the Drug Enforcement Administration (DEA), and the National Institute on Drug Abuse (NIDA).

DESCRIPTION:

Methamphetamine is a synthetic stimulant that is produced and sold illegally in the form of pills, capsules, powder, and chunks. It works by artificially stimulating the reward or pleasure area of the user's brain without causing anything beneficial to happen to the body. Methamphetamine has a high potential for abuse and dependence (addiction). The drug has an addiction rate of 80%, comparable with that of crack cocaine.

HEALTH EFFECTS:

Methamphetamine is a drug that strongly activates certain systems in the brain. Methamphetamine is closely related chemically to amphetamine, but the central nervous system effects of methamphetamine are greater. Both drugs have some medical uses, primarily in the treatment of obesity, but their therapeutic use is limited. Pregnant women using methamphetamine may severely damage the fetus. Underdevelopment of the brain stem of the child is the most common resulting impairment. Infants with prolonged exposure to the drug are smaller, show overall slow development, and are prone to illness.

Central nervous system actions that result from taking even small amounts of methamphetamine include increased wakefulness and physical activity, decreased appetite at times leading to extreme anorexia, increased respiration, hypothermia, and euphoria. Further effects include irritability, insomnia, confusion, tremors, convulsions, anxiety, paranoia and aggressiveness. Hypothermia and convulsions may result in death.

Possible visible physical health effects of using methamphetamine that staff should be aware of include uncontrollable movements (twitching, jerking, etc.), impaired speech, dry-itchy skin, acne, sores and numbness. Methamphetamine addicts and users have been known to experience a phenomenon known as "crank bugs," that are chronic hallucinations in which they perceive insects are crawling on or beneath the skin. Individuals experiencing "crank bugs" will often scratch and gouge at their skin until it breaks open, subjecting the body to severe infection.

Cardiovascular side effects, which include chest pain and hypertension, may also result in cardiovascular collapse and death. In addition, methamphetamine causes increased heart rate and blood pressure and can cause irreversible damage to blood vessels in the brain, producing cerebral vascular accidents (strokes).

SUPPLY AND USE:

Methamphetamine is a Schedule II drug under Federal regulations, meaning it has a high potential for abuse with severe liability to cause dependence. According to the Drug Enforcement Administration (DEA), methamphetamine has been the most prevalent, clandestinely produced controlled substance in the United States since 1979. Recent statistics indicate that Missouri and California rank the highest in methamphetamine laboratory seizures.

Pure methamphetamine is white, odorless and bitter tasting. It is sometimes packaged in tablets or capsules to resemble legal, commercial products. Users commonly swallow methamphetamine powder, sniff it through the nose or dissolve it in water and inject it intravenously. Users also smoke chunks of a very pure form of crystalline methamphetamine called "ice." While ice and "crystal meth" are chemically the same, they are structurally different. Ice is a crystalline form of methamphetamine that is higher in purity (around 97 percent pure). Crystal meth, while it is called "crystal," is usually obtained in a powder form and in varying levels of purity. Ice looks like chipped ice, rock salt or chipped glass. The crystal is usually clear but may also be milky white or yellowish brown. While the effects of crystal meth last two to four hours, the duration of an ice-high is said to last anywhere from 7 to 24 hours.

Special problems related to the surveillance of methamphetamine involve the many different street names by which the drug is known. Users rarely refer to the drug by its five-syllable chemical name. Street names for methamphetamine include crank, crystal, speed, crystal meth, glass, peanut butter speed, ice, go-fast, zip, chris, cristy, go or meth. Because of the variety of terms used, it is likely that data collection and reporting of methamphetamine abuse may not always properly classify the substance described. Consequently, it is important that child protective services staff, treatment counselors, emergency room staff, educators and law enforcement personnel be familiar with the various street names. The localized nature of methamphetamine epidemics emphasizes the need for creative prevention strategies created by community-based networks. It is important that local networking occur and for communication and cooperation to be encouraged among key professionals from various disciplines to develop comprehensive strategies.

MANUFACTURING METHAMPHETAMINE (CLANDESTINE LABS):

There is always potential for a fire or explosion with a clandestine laboratory. The chemicals are flammable, combustible and explosive. The lack of proper ventilation and temperature controls at these laboratories further compound this problem of fire, explosion and human exposure. The most likely individuals to be exposed include the drug manufacturers themselves as well as anyone entering or living in the home. Children living in the environment, neighbors, Children's Division staff, juvenile office staff, law enforcement officers, and home-based professionals such as visiting nurses, Parents as First Teachers staff, therapists, and others who enter the property are at risk of being exposed to dangerous chemicals.

Most productive clandestine methamphetamine laboratories have been reported in secluded, rural areas away from the metropolitan distribution areas that they may service, however they have been found in almost all areas of the state. Meth labs are usually small and portable enough that it is not unusual for them to be set up in houses, garages, apartments, motel rooms, and trailers.

A deserted methamphetamine laboratory poses significant risks to the health of the public in nearby vicinities. Trained professionals must only carry out proper decontamination of such sites. Clandestine laboratory seizure requires specialized training, detection and safety precautions. The hazardous waste cleanup and disposal can range from $5,000 to $10,000. In some instances, proper decontamination for reuse of the property may not be feasible, and the property may have to be totally destroyed.

Today, almost anyone with the desire can produce methamphetamine. The various "recipes" are routinely passed around prisons and can also be found on the Internet. Narcotics officers often find the recipes scrawled on scraps of paper on people they arrest. Chemicals for the recipes can be purchased legally and are often very easy to buy. The problem of clandestine methamphetamine production is rapidly increasing. In 1993 there were 6 methamphetamine laboratories seized by law enforcement in the Midwest; in 1996 there were 365 seizures in Missouri, and 750 seized in 1997. Preliminary data for 1998 indicates that there were 839 clandestine methamphetamine laboratory seizures. 481 meth labs were seized by the Missouri Highway Patrol and 358 were seized by the Drug Enforcement Agency (DEA).

While over the counter medications containing ephedrine or pseudo ephedrine may not be harmful, many of the chemicals used to process them into illegal meth are dangerous. An underlying, but very important problem with the illicit production of methamphetamine is that the producers possess neither the knowledge nor the skill to carry out the synthesis appropriately. They often do not use the correct proportion of precursors, reagents, solvents or catalysts, and they may not follow the instructions for the synthetic process exactly as stated. The chemicals combined with the limited knowledge and unsafe practices of the laboratory "cooks" contribute to the likelihood of an explosion. The Department of Public Safety reports that explosions of these clandestine methamphetamine laboratories accounted for one out of five labs discovered in 1996. Typical chemicals in a meth lab, such as methylamine, ethyl ether, benzene, methanol, and lithium aluminum hydride are extremely flammable. Other chemicals such as sodium, magnesium and potassium metals are extremely reactive with air and water and can ignite or explode.

The list of chemicals used in the manufacture of methamphetamine is long and still evolving with new "cooking" methods. The exact chemicals used to produce it may vary from lab to lab, as recipes circulate. Each lab usually has its own variation. It cannot be said with certainty what combination of chemicals will be found.

The following chemicals are associated with illicit methamphetamine manufacturing:

<u>metal/salt reagents</u>	<u>solvents</u>
aluminum foil	acetone

iodine
lead acetate
lithium aluminum hydride
magnesium
mercuric chloride
palladium
red phosphorus
sodium
sodium cyanide
thionyl chloride

benzene
chloroform
ethyl ether
freon
hexane
isopropanol
methanol
pyridine

<u>precursors</u>
acetaldehyde
benzyl chloride
ephedrine
methylamine
phenylacetic acid
P2P

<u>acid-base reagents</u>
acetic acid
acetic anhydride
ammonia
hydrochloric acid
hydrogen peroxide
hydriodic acid
sodium hydroxide
sulfuric acid

According to the DEA, the following chemicals are the most commonly used in clandestine production of methamphetamine:

<u>Ephedrine</u>: a solid made up of crystals and granules; harmful if swallowed in large quantities; do not breathe dust; avoid contact with skin and eyes.

<u>Hydriodic acid</u>: a corrosive acid that is colorless when freshly prepared. Upon exposure to light and air, however, it turns yellowish and brown. It is a solution of hydrogen iodide gas in water. Vapor is irritating to respiratory system, skin, and eyes; liquid causes severe burns to eyes and skin; if ingested, may cause severe internal irritation and damage.

<u>Hydrochloric acid</u>: a solution of hydrogen chloride gas in water. Corrosive, colored to light yellow liquid from traces of iron, chlorine and organic matter. Inhaling may cause coughing or choking, inflammation and ulceration of the respiratory tract; concentrated solutions cause severe burns; irritant to the mucous membranes, eyes and respiratory tract; exposure to vapors may result in pulmonary edema and possibly death.

<u>Iodine</u>: bluish-black scales or plates. It has a characteristic odor, a sharp acrid taste and produces a violet corrosive vapor. Vapor is irritating to the respiratory system and eyes; the solid irritates the eyes and may burn the skin; may cause severe internal irritation and damage if ingested.

<u>Pseudo ephedrine</u>: both the base and salts are crystalline materials. Harmful if swallowed in large quantities; do not breathe dust; avoid contact with skin and eyes.

Red Phosphorus: red to violet powder. Insoluble in organic solvents. Vapor from ignited phosphorous irritates the nose, throat, lungs, and eyes.

Sodium Dichromate: reddish to bright orange, somewhat deliquescent crystals; becomes anhydrous with prolonged exposure to heat. Irritating to the eyes, respiratory system and skin.

Each of the products and equipment listed below have legitimate uses and separately, would not be cause for concern. When found in combination and close proximity, notice and extra precaution should be practiced. If staff develop reasonable suspicion of a methamphetamine operation while in the course a home visit, steps should be taken to conclude the visit quickly without causing concern of the those individuals present, that suspicion has developed. This is especially important in light of the previously discussed effects of methamphetamine use including extreme aggressiveness, rapid mood swings and paranoia.

According to the DEA, many methamphetamine laboratories that have been seized in Missouri since 1993 have used the Sodium-Ammonia method or "recipe" rather than the traditional, more complicated method. This recipe or method is a simple and clean (essentially one-step) method for producing methamphetamine. The yield of methamphetamine is 90-95 percent, with a reaction time of 10 minutes. Counting extraction of tablets and cleanup of materials and containers, the maximum time needed would be about two hours.

The recipe essentially consists of converting pseudo ephedrine to methamphetamine using anhydrous ammonia and sodium metal. The "typical" laboratory uses ordinary beverage containers (Mr. Coffee, Thermos jug, soda containers, and large plastic cups); kitchen utensils (spatulas, stirrers, plastic bowls, etc.) and other items used in the home. Some of the chemicals used may come from local hardware stores (starting fluid, denatured alcohol, and drain opener) and small amounts would not generate suspicion. Law enforcement is working with local merchants, requesting that they notify the police when large quantities of these chemicals are being purchased. The extremely strong odor of ammonia emanating from white powder is also a telltale sign for which professionals should be aware.

Ingredients and products used in methamphetamine production include:

Ingredient	Product or Source
Ephedrine or Pseudo ephedrine	over-the-counter cough & cold medication
Lantern fuel or white gas	
Acetone or paint thinner	fingernail polish remover
Lye	Red Devil Lye Drano
Lithium	camera batteries
Sulfuric acid	Liquid Fire or drain cleaner
Sodium chloride	table salt, rock salt

Ethyl ether	vehicle starter fluid or spray
Anhydrous ammonia	may be stolen from a farm and is often transported in a propane gas cylinder or a beer cooler
Red phosphorus	road flares or match heads
Iodine crystals	obtained from farm supply store
Water binder	Liquid Heet – from an auto supply store
Muratic acid	
Hydrochloric acid	

Equipment that may be used in methamphetamine production include:

Glass jars or mixing bowls
Propane tanks (as used for barbecue grills) to carry anhydrous ammonia
Plastic beer coolers to carry anhydrous ammonia
Large amount of coffer filters to strain liquids
Plastic tubing or hoses
A hot plate, camp stove or electric skillet for a heat source
A turkey baster to remove liquid from the top of a jar

Indicators include:

A trash pile with a large amount of empty packaging of above items
Chemical odor of ether or ammonia
Peeled casings from lithium batteries
Aerosol cans of starter fluid with "church key" puncture holes in the bottom
White powder residues
Syringes or needles

ADDITIONAL WARNING SIGNS INDICATING A METHAMPHETAMINE LABORATORY MAY BE PRESENT:

While most "cooks" prefer secluded areas, clandestine methamphetamine laboratories have been found in almost all areas of the state. Some of the signs that may indicate the presence of a meth lab are:

Smoking breaks: While going outside to smoke is in itself not an indicator, when taken with other suspicious signs it may be. Since ether is highly explosive, "cooks" will often go outside to get away from the lab before lighting and smoking a cigarette.

Chemistry equipment: Flasks, rubber tubing, and beakers similar to those used in chemistry classes may be sign that a lab is operating in the vicinity.

Strong chemical odors: Strong odors of ether and chloroform are common at meth sites. Some people have described the odor as an ammonia smell, similar to the odor of a strong cat litter box.

Containers: Chemical containers or drums with their labels removed or painted over.

Maroon residue on aluminum materials near the lab: Some processes for making methamphetamine do not give off the telltale ammonia odor, but the acids tend to react with aluminum in such a way that a maroon residue is left on the surface.

Containers used for purposes not originally intended: Glass milk containers or re-sealable glass beer containers containing unfamiliar liquids.

Unusual traffic levels: Unusual levels of foot or vehicle traffic. Individuals involved in illicit drug transaction will usually be at the purchase site for only a brief time, sometimes only a few minutes.

No visible means of support: Large amounts of cash with no visible means of support and the presence of other signs can be an indicator of illegal activity.

Unusual security precautions: Extra locks, barred windows, blacked out windows, and expensive alarm systems may be a sign of a clandestine methamphetamine laboratory.

POTENTIAL DANGERS

For society, one of the most damaging consequences of methamphetamine is the degree of violence that the drug inspires. According to the San Diego Association of Governments, 24 percent of all people arrested in San Diego County in 1992 for violent crime were found to have amphetamines in their systems, primarily methamphetamine. Chronic, moderate-to-high-dose methamphetamine abuse often results in very aggressive behavior and other forms of violent action. The behavioral and psychological effects associated with methamphetamine use include hyperactivity, agitation, liability of emotion, and paranoid delusional thinking. These combined with personality factors and the social context, contribute to the occurrence of violence.

Violent and aggressive actions are characteristic of individuals using methamphetamine. The DEA has identified four phases of behaviors associated with methamphetamine use:

Phase One: Early in methamphetamine use, people report mood elevation (euphoria, alertness and excitation). Routine tasks no longer seem monotonous; appetite is suppressed, conversation comes easily, and users feel energized, faster, and stronger.

Phase Two: As months pass, users begin to lose weight. As tolerance increases the user must dramatically increase his/her intake to recapture the initial experience and avoid depression.

Phase Three: This phase is characterized by paranoid thoughts, mistrust of people and heightened sensitivity to sound. A car door slamming across the street may lead the user to think someone is breaking into his or her home. The person is very short-tempered and agitated. An infant crying can provoke rage.

Phase Four: In the final stage of methamphetamine abuse, the user experiences a break with reality. Delusions and paranoia dominate his/her thoughts; voices and hallucinations rule his/her life

Clandestine laboratories producing illicit drugs are operated with little or no safety precautions. Immediate dangers include fire, explosion, inhalation of harmful fumes, and skin contact with dangerous chemicals. Exposure to chemicals found in such laboratories without proper training and protection can cause cumulative, damaging effects to the body. Children's Services Workers should leave the area immediately, or as soon as possible, if they suspect that a methamphetamine laboratory is in operation. Trained law enforcement officials, DEA agents, or specified drug task force members are responsible for entering the premises, determining if a methamphetamine laboratory is present, and removing any child(ren) if necessary.

Protocol for Children's Division Staff

Methamphetamine laboratories that produce illicit drugs operate with little or no safety precautions. Immediate dangers include fire, explosion, and inhalation of harmful fumes and skin contact with dangerous chemicals. Exposure to chemicals found in such laboratories without proper protection can cause cumulative damaging effects to the body. Methamphetamine laboratory seizure requires specialized training, detection and safety precautions. Because of these facts, the following changes in policy are being implemented for Children's Division staff:

Safety is the Foremost consideration.

Staff should leave the area immediately or as soon as possible if they suspect an active methaphetamine laboratory is being housed in a residence or its vicinity. The products and equipment listed above, do have legitimate uses and separately would not be cause for concern. When found in combination and close proximity, however, staff should take notice and use extra precaution. Do not use sense of smell or touch to attempt to identify chemicals or unknown substances. Do not walk through any area where chemicals may have spilled. If staff develop reasonable suspicion of a methaphetamine operation while in the course of a home visit, efforts should be made to conclude the visit quickly, without causing concern of the individuals of the household, that suspicion has develop. This is extremely important due to the extreme aggressive behavior, rapid mood swings and paranoia that use of methaphetamine may elicit.

Staff must contact local law enforcement immediately. Local law enforcement agencies should have established a specific protocol for use when reports of methamphetamine laboratories are received. Drug Task Force, DEA personnel, or Highway Patrol Division of Drug and Crime Control (DDCC) are contacted and requested at a specific scene before any other personnel enter.

Staff should not enter any building until clearance to do so is received from trained law enforcement personnel, DEA agents, or Drug Task Force members. A safe distance, upwind, should be maintained from the suspected laboratory.

If children have been removed from a home where a known or suspected methaphetamine laboratory was located and there is suspicion that the children were exposed to chemicals, the following procedures should be used:

Child(ren) should receive a physical examination as soon after removal as possible. Medical professionals need to be informed immediately of the situation and to what possible chemicals the children might have been exposed. The child(ren) should have a lead screening when they receive the physical examination, as high levels of lead have been detected in children removed from homes that contained a methaphetamine laboratory.

Immediately following the removal of the child(ren) from the home, he/she should be observed closely for labored breathing and headaches, for at least 48 hours. If labored breathing or headaches do occur, the child(ren) should be taken immediately to a physician or an emergency room.

If there is knowledge that the child(ren) had direct exposure (i.e., he/she was in the same room when the "cooking" process was taking place) to any chemical, the clothing, shoes, etc., should be thrown away. All clothing, shoes, and toys that are removed from the home with the child(ren) should be thoroughly washed with soap and water. Bleach should be used to clean the washing machine and area where the washing occurred.

The child(ren) and any adults that have had physical contact with him/her should wash all skin surfaces thoroughly with soap and water except when injuries have occurred. Children with open wounds should receive immediate medical attention.

MEMORANDUM HISTORY: